

Submitted by Ed Rivet  
Right to life of Michigan

# Stem cell ban hurts Michigan

*Prohibition on embryonic research repels best medical minds from state*

By A. ALFRED TAUBMAN

One hundred years ago, Michigan's economy was the envy of the world. Inventors and entrepreneurs were flocking here from all over the world to start their businesses, make their fortunes and change the world.

Today people, companies and industries are fleeing the state.

We desperately look to recapture some of the magic we created at the turn of the last century.

History can repeat itself. But I'm very concerned that in one critical re-

spect we may be our own worst enemy — with the restrictions the state puts on medical research.

## Build on medical legacy

Examining our past success, the first names that come to mind are the likes of Ford, Olds, Sloan and Durant. But to help chart our future, I suggest we focus on a different set of high-achieving Michiganders: William Upjohn, Herbert Dow, Hervey Parke and George Davis.

We tend to overlook it, but at the same time we were putting the world on wheels at the turn of the last century, we were leading a revolution in chemistry, science and medicine.

Dow Chemical, founded in Midland in 1897, was extracting bromine from our soil. Upjohn, founded in Kalamazoo in 1886, was perfecting the first large-scale production of cortisone. Parke-Davis, founded in Detroit in 1886, was conducting clinical trials in the first modern pharmaceutical laboratory in the world, creating the first bacterial vaccines.

With all due respect for my friends in the auto industry (who

make terrific cars and trucks), if lightning is going to strike twice for our state, it's far more likely to be in science than manufacturing. The frontiers of biotechnology and life sciences have never been more promising. And we have much of the formula for success in place: great research universities; abundant natural resources (especially the essential and increasingly precious element of water); and a talented work force anxious to get back on the job.

## Scientists scared away

Unfortunately, at a time we should be welcoming the 21st-century's best minds, we've hung "Scientists do not enter" signs on our borders. Michigan boasts one of the most inhospitable environments in the nation for cutting-edge medical research. My friends in the medical community (at 83, I'm one of their best customers) tell me that it's becoming increasingly difficult to recruit young chemists and medical researchers to our universities.

Why? In part, because embryonic stem cell research is essentially illegal in Michigan. Our researchers are permitted to work with stem cells from the tissue of adults, children, umbilical cords and developing fetuses. But the vast majority of scientists agree that stem cells from embryos, with the ability to reproduce themselves into any one of hundreds of cells found in the human body, hold the greatest promise.

The amazing medical breakthroughs made possible by embryonic stem cell research — with the potential to improve the quality and length of our lives — will happen somewhere else if Michigan continues to opt out.

For example, I'm funding promising research at the University of Michigan to find a cure for amyotrophic lateral sclerosis,



David Coates / The Detroit News

Medical researchers or technicians like Kelly Yeager at the University of Michigan Center for Stem Cell Biology can use adult and umbilical chord stem cells in research in Michigan, but not ones from embryos.

better known as Lou Gehrig's disease. Some of the highest incidence rates in the world of this devastating disease are found right here in Michigan. But much of the work directed by the U-M research team has to be done in California, where there is access to new lines of embryonic stem cells from fertility clinic patients who have voluntarily donated their left-over embryos rather than have them discarded as medical waste.

Under current state law, if this critical work were done in a U-M laboratory, the scientists could be sent to prison for up to 10 years and be fined up to \$10 million.

## Out of the mainstream

We're really out of step with mainstream scientific and political thought on this issue. No lesser an authority than the National Institutes of Health encourages the pursuit of embryonic stem cell research, along with the less controversial work being done with adult stem cells.

Now, I know that this is an emotional issue. The question of when a viable human life begins is a very personal matter, but so is the question of denying you or a loved one life-saving medical

treatments and cures.

It may seem insensitive to have this debate in the context of jobs and economics. But as a state at risk, we need to have an honest, dispassionate examination of the facts, risks and rewards. Beliefs on all sides are heartfelt and deserve our fullest respect.

So let's have the discussion — from Grand Rapids to Detroit — and see if we can't craft the most ethical and effective stem cell research regulations in the nation. If our legislators lack the political will to tackle this in Lansing, let's put the question to the voters in November 2008.

Michigan is in a global race just like the one Ford and Sloan, as well as Upjohn, Dow, Parke and Davis, helped Michigan win 100 years ago. And the rewards — in both economic and human terms — are far, far greater.

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## Current Federal and Michigan Law

Due in part to intentionally charged rhetoric by both sides of this debate and to terribly inaccurate and simplistic media coverage, there are enormous misconceptions about the status of the law both nationally and in the state of Michigan. Clarification on these public policy matters is crucial to moving toward a resolution on the stem cell question.

- There is **NO** federal law banning any type of embryonic stem cell research, nor banning the destruction of human embryos to obtain stem cells.
- While all embryo destruction and stem cell research are completely allowable under federal law, *there is a ban on taxpayer dollars being used to fund any future embryo destruction or researching on stem cells taken from embryos killed after August 9, 2001*. This is when President Bush instituted a policy not to fund additional embryo-destructive research. Embryonic stem cells harvested before this date are eligible for taxpayer funds. (Under this policy, the University of Michigan is currently conducting such research on stem cells with federal tax dollars).
- Michigan law *bans the destruction of live human embryos for research purposes (MCL 333.2685), but does NOT ban research on embryonic stem cells*. Thus, stem cells harvested in other states can be imported into Michigan and researched upon without any legal restrictions (as is happening at U-M). Scientists in Michigan may not create their own embryonic stem cell lines here. *Embryonic stem cell research is completely unrestricted in Michigan so long as the embryo-destructive harvesting of the stem cells takes place elsewhere*.
- Michigan law *prohibits the creation of cloned human embryos for any purpose (MCL 333.16274)*. Thus, both "therapeutic" cloning and "reproductive" cloning are banned. Again, the cloning of an embryo, and the stem cells created from it can be brought into Michigan for research, so long as the cloning and destruction of the embryo happens elsewhere.
- Legislation enacted in 2006 to promote a statewide network for umbilical cord blood stem cell banking did not include funding for the program. Therefore, it is the policy of the state to promote umbilical cord stem cell banking, but absent the funding, no significant progress is likely.
- There are no laws or restrictions governing the care or treatment of embryos created for infertility treatment via in vitro fertilization. The embryos can be stored in a frozen state, thawed and allowed to die ("thrown away"), donated for destructive research in another state, or donated to another infertile couple to bring the child to birth (embryo adoption).

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Article published Nov 1, 2007

## **PHIL POWER: State going 'backward' with science**

History is full of examples of political authorities and churches making fools of themselves by making various kinds of scientific research illegal. Most of us know the story of Galileo, the great 17th century astronomer and physicist who proposed that the earth rotates around the sun. He was severely punished by the Roman Catholic hierarchy, and the result embarrassed the church for centuries.

In this country, we had the 1925 Scopes trial in Dayton, Tennessee, in which Clarence Darrow famously made monkeys out of William Jennings Bryan and the state authorities.

But we seem not to have learned very much from history. In 1978, the Michigan Legislature passed a law essentially banning all forms of research on human embryos. Then, in 1998, two years after scientists in Scotland cloned Dolly the sheep, our lawmakers amended that. The legislature then made illegal reproductive cloning of any sort strictly illegal. That bill was at best, unnecessary.

Nobody is speaking out in favor of cloning people. But what that bill did was help the Michigan legislature put itself firmly on the side of repression, and against science and progress. Any scientist who does research on human embryonic stem cells is now subject to jail time of up to 10 years and a fine of up to \$10 million.

Michigan is only one of five states around the country that operates under restrictions anywhere near that harsh. (In California, when the Bush Administration cut off funding for embryonic stem cell research, Californians voted to fund it with billions of state money.)

So how has all this affected Michigan?

Well, it is helping transform us into a scientific backwater. It hasn't saved a single embryo — the ones that would have been used are leftovers from fertility clinics. If they can't be used for research, they are poured down the drain.

And the only thing we have been "protected" from is scientists who might have come here and found a cure for terrible diseases like Parkinson's, macular degeneration and Huntington's chorea.

Now for a better idea. Rep. Andrew Meisner, D-Ferndale, wants to hold a hearing next week on a bill that would allow embryonic stem cell research on embryos that have been discarded by fertility clinics, but only if the donor gives prior written consent and receives no financial compensation.

Meisner, who is 34 and in his final term, says it's both perverse and bizarre that present law makes it legal for fertility clinics to throw unused embryos into the garbage, but makes it illegal for a scientist to use those same embryos to try to cure disease.

Meisner thinks he's got the votes to get his bill out of the House Judiciary Committee, but he recognizes that it hasn't got a chance before the full house. That's why folks like Michigan philanthropist and shopping center magnate Al Taubman are spearheading a group called Michigan Citizens for Stem Cell Research & Cures to explore whether to put the measure on the statewide ballot in 2008.

Judging from current poll results, a healthy majority of Michigan citizens would support such a measure. Opponents, including Michigan Right to Life and the Michigan Catholic Conference, say the research would destroy human embryos. They fear it could lead to outright cloning. The Catholic Conference this month launched a campaign by mailing DVD's to Catholic homes and asking priests to condemn the issue during Mass.

Opponents also argue that research on adult stem cells, which is deemed not to threaten life, is just as promising as embryonic work. Scientists disagree. They counter that adult stem cells are limited in their ability to grow and transform themselves into the kinds of tissue that would support wide-ranging research.

What many don't realize is that in addition to the scientific and moral arguments, there is an economic development aspect to this debate. Other states — California, Massachusetts and New Jersey — have concluded stem cell research could be a terrific boost to the life sciences and related industries. Californians defied the Bush Administration and passed a ballot issue that invested \$3 billion in state funds for stem cell research over a decade.

The Analysis Group, an economic research company, predicts that this investment will snowball, generating state revenues and health care cost savings between \$6 billion and \$12 billion.

That's a lot of money, especially when you consider that scientists at the University of Michigan are among the national leaders in this field. But many are not willing to work here under current legal threat. Dr. Bennett Novitch, who was an assistant professor of cell and development biology, has taken his work on neuron stem cells to the University of California-Los Angeles.

Other start-up firms around the U-M are considering leaving the state, tired of trying to work within the restrictive Michigan law.

Professor Sean Morrison, one of the most respected scholars in the field, and director of the University of Michigan Center for Stem Cell Biology, says bluntly, "As somebody who does adult stem cell research every day, if we're really serious about curing diseases, we should be studying both embryonic and adult stem cells."

He is right, of course. And even if he wasn't, Meisner's bill deserves a fair hearing. And if he can't get that hearing in the legislature — and maybe even if he can — the proposal to legalize embryonic stem cell research is so vastly important that it deserves to be taken to the people for a statewide up-or-down vote.

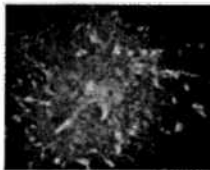
*Former newspaper publisher and University of Michigan Regent Phil Power is a longtime observer of Michigan politics and economics. He is also the founder and president of The Center for Michigan, a centrist think-and-do tank. The opinions expressed here are Power's own and do not represent the official views of The Center. Power welcomes your comments at [ppower@thecenterformichigan.net](mailto:ppower@thecenterformichigan.net).*



# Michigan Center for hES Cell Research



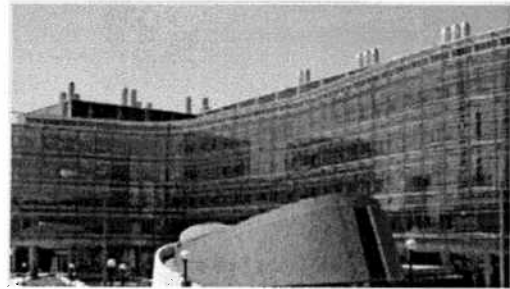
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## ◆ Our History

The Michigan Center for hES Cell Research was established in 2002 within the Center for Organogenesis with generous funding from the Medical School's Endowment for the Basic Sciences.

In 2003, the Center was awarded an Exploratory Center Grant for Human Embryonic Stem Cell Research from the National Institutes of Health (1 P20 GM069985-01) to expand and further support hES cell research at the University. Upon completion of the Medical School's Biomedical Science Research Building in 2006, the Center relocated to this new state of the art facility.



## ◆ Our Goals

The goal of the hES Cell Center is to provide training, technologies, and education in human embryonic stem cell biology.

1. We are a tissue culture Core Facility established to maintain hES cell lines, provide quality control and share expertise, protocols, and reagents within the U of M scientific community. The Core will also be engaged in basic research under the direction of the Core Director.
2. The Core Facility provides coursework and hands on training in the culture of human embryonic stem cells for faculty, staff, and students.
3. Graduate coursework, seminar programs, and an annual symposium have been established as educational opportunities for the scientific community.
4. Education of the general public on the facts and potential benefits of human embryonic stem cell research is also part of our goal. The Center participates in community outreach and provides educational opportunities through a variety of programs.

## ◆ Our Research

More than 40 scientists are active participants in the Center for hES Cell Research. The research ranges in scope from studies of the fundamental biology of stem cells and the human embryo, to understanding the development of all the organ systems in the body, to therapeutics and bioengineering of tissues and organs.





# Michigan Center for hES Cell Research

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## ◆ Stem Cell Policies

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### **University of Michigan Policy on Research with Human Embryonic Stem Cells:**

<http://www.research.umich.edu/policies/um/ESCells.html>

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### **U of M President Mary Sue Coleman's statement:**

[http://www.umich.edu/~urecord/0506/Apr24\\_06/05.shtml](http://www.umich.edu/~urecord/0506/Apr24_06/05.shtml)

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### **U of M EVP Robert Kelch's statement:**

<http://www.lifesciences.umich.edu/research/featured/kelch.pdf>

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### **State of Michigan Statute on Human Embryonic Stem Cells:**

**Michigan Statute (MCLA 333.16274 and 750.430a)**

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### **NIH Guidelines to Human Embryonic Stem Cell Research:**

<http://stemcells.nih.gov/policy/guidelines.asp>





## Michigan's Laws Banning Human Cloning

### Public Health Code - Sec. 16274 (MCL 333.16274)

- (1) A licensee or registrant shall not engage in or attempt to engage in human cloning.
- (2) Subsection (1) does not prohibit scientific research or cell-based therapies not specifically prohibited by that subsection.
- (3) A licensee or registrant who violates subsection (1) is subject to the administrative penalties prescribed in sections 16221 and 16226 and to the civil penalty prescribed in section 16275.
- (4) This section does not give a person a private right of action.
- (5) As used in this section:
  - (a) "Human cloning" means the use of human somatic cell nuclear transfer technology to produce a human embryo.
  - (b) "Human embryo" means a human egg cell with a full genetic composition capable of differentiating and maturing into a complete human being.
  - (c) "Human somatic cell" means a cell of a developing or fully developed human being that is not and will not become a sperm or egg cell.
  - (d) "Human somatic cell nuclear transfer" means transferring the nucleus of a human somatic cell into an egg cell from which the nucleus has been removed or rendered inert.

### Public Health Code - Sec. 20197 (MCL 333.20197)

- (1) A health facility or agency shall not allow a licensee or registrant under article 15 or any other individual to engage in or attempt to engage in human cloning in a facility owned or operated by the health facility or agency.
- (2) Subsection (1) does not prohibit a health facility or agency from allowing a licensee or registrant under article 15 or any other individual from engaging in scientific research or cell-based therapies not specifically prohibited by that subsection.
- (3) A health facility or agency that violates subsection (1) is subject to the administrative penalties prescribed in section 20165(4).
- (4) This section does not give a person a private right of action.
- (5) As used in this section, "human cloning" means that term as defined in section 16274.

### Penal Code - Sec. 430A (MCL 750.430a)

- (1) An individual shall not intentionally engage in or attempt to engage in human cloning.
- (2) Subsection (1) does not prohibit scientific research or cell-based therapies not specifically prohibited by that subsection.
- (3) An individual who violates subsection (1) is guilty of a felony punishable by imprisonment for not more than 10 years or a fine of not more than \$10,000,000.00, or both.
- (4) As used in this section, "human cloning" means that term as defined in section 16274 of the public health code, 1978 PA 368, MCL 333.16274

## Michigan Laws Banning Embryo Destructive Research

Michigan Public Health Code Sections 2685-2691

(MCL 333.2685-.2691)

### Sec. 2685.

(1) A person shall not use a live human embryo, fetus, or neonate for nontherapeutic research if, in the best judgment of the person conducting the research, based upon the available knowledge or information at the approximate time of the research, the research substantially jeopardizes the life or health of the embryo, fetus, or neonate. Nontherapeutic research shall not in any case be performed on an embryo or fetus known by the person conducting the research to be the subject of a planned abortion being performed for any purpose other than to protect the life of the mother.

(2) For purposes of subsection (1) the embryo or fetus shall be conclusively presumed not to be the subject of a planned abortion if the mother signed a written statement at the time of the research, that she was not planning an abortion.

### Sec. 2686.

Sections 2685 to 2691 shall not prohibit or regulate diagnostic, assessment, or treatment procedures, the purpose of which is to determine the life or status or improve the health of the embryo, fetus, or neonate involved or the mother involved.

### Sec. 2687.

An embryo, fetus, or neonate is a live embryo, fetus, or neonate for purposes of sections 2685 to 2691 if, in the best medical judgment of a physician, it shows evidence of life as determined by the same medical standards as are used in determining evidence of life in a spontaneously aborted embryo or fetus at approximately the same stage of gestational development.

[Sec. 2688 excluded]

### Sec. 2690.

A person shall not knowingly sell, transfer, distribute, or give away an embryo, fetus, or neonate for a use which is in violation of sections 2685 to 2689.

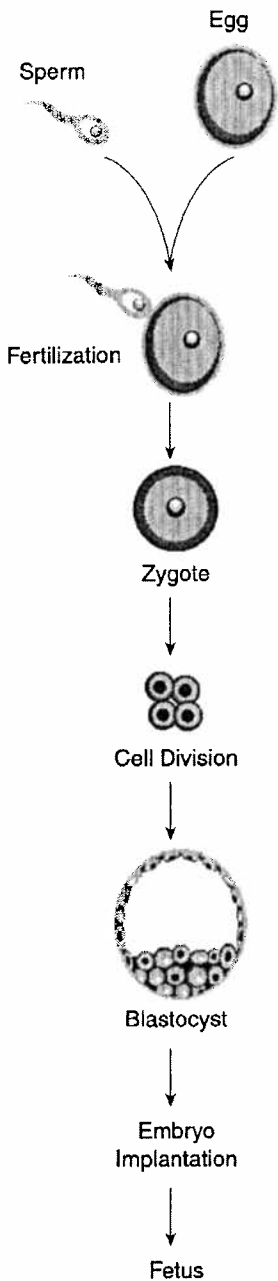
### Sec. 2691.

A person who violates sections 2685 to 2690 is guilty of a felony, punishable by imprisonment for not more than 5 years.

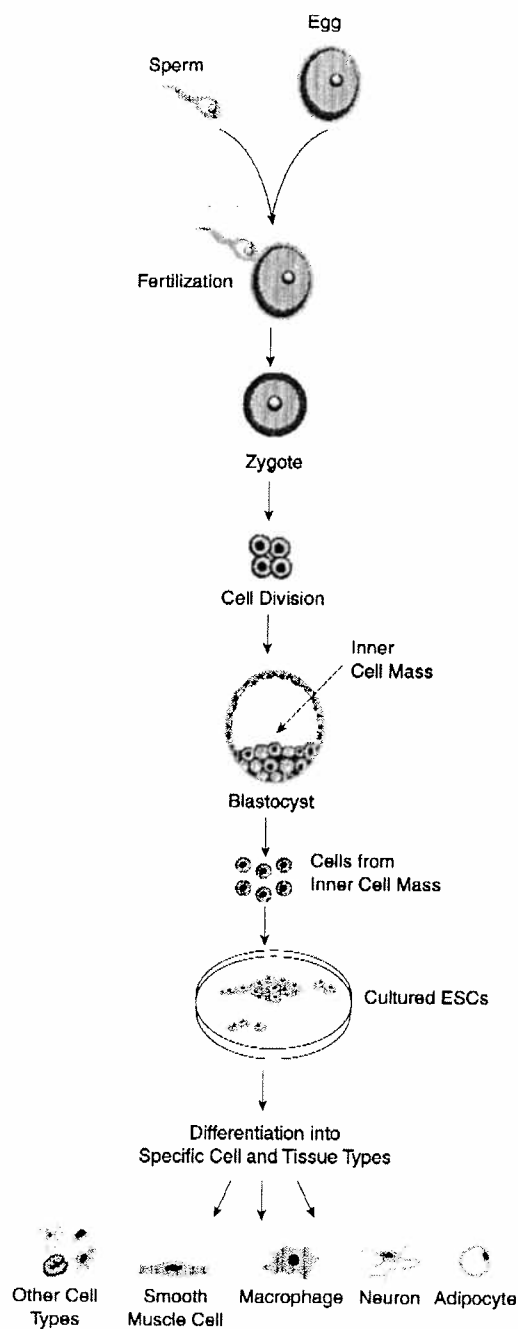
# Fertilization - Cloning - Embryos - Stem Cells

"An embryo is an embryo is a person."

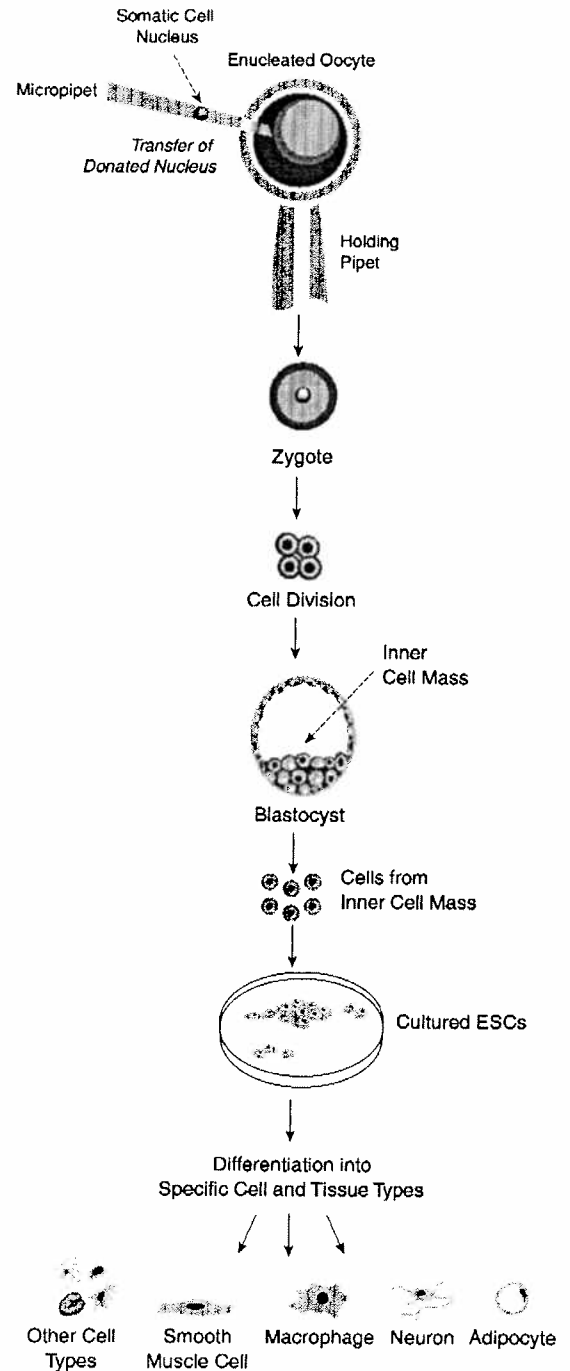
In Vitro Fertilization  
to Create a Child



In Vitro Fertilization  
to Create Embryonic  
Stem Cells



Cloning (SCNT) to  
Create Embryonic  
Stem Cells





1 be conclusively presumed not to be the subject of a planned  
2 abortion if the mother signed a written statement at the time of  
3 the research —that she was not planning an abortion.

4 (3) A PERSON MAY USE A LIVE HUMAN EMBRYO TO DERIVE STEM CELLS  
5 FOR NONTHERAPEUTIC RESEARCH IF THOSE EMBRYOS WERE FROM EITHER OF  
6 THE FOLLOWING SOURCES:

7 (A) THE EMBRYOS WERE CREATED FOR THE PURPOSE OF FERTILITY  
8 TREATMENT, WERE IN EXCESS OF THE CLINICAL NEED OF THE INDIVIDUALS  
9 SEEKING THE FERTILITY TREATMENT OR NOT SUITABLE FOR IMPLANTATION,  
10 AND WERE DONATED BY THE IN VITRO FERTILIZATION CLINIC AS LONG AS  
11 EACH OF THE FOLLOWING IS SATISFIED:

12 (i) PRIOR TO THE CONSIDERATION OF DONATING THE HUMAN EMBRYOS,  
13 IT WAS DETERMINED THROUGH CONSULTATION WITH THE INDIVIDUALS SEEKING  
14 FERTILITY TREATMENT THAT THE REMAINING, UNUSED, OR UNSUITABLE HUMAN  
15 EMBRYOS WERE TO BE DISCARDED OR OTHERWISE DISPOSED OF.

16 (ii) THE INDIVIDUALS SEEKING FERTILITY TREATMENT DONATED THE  
17 HUMAN EMBRYOS WITH WRITTEN INFORMED CONSENT AND WITHOUT RECEIVING  
18 ANY FINANCIAL OR OTHER INDUCEMENTS TO MAKE THE DONATION OF THE  
19 HUMAN EMBRYOS FOR NONTHERAPEUTIC RESEARCH.

20 (B) NOTWITHSTANDING SECTION 16274, THE UTILIZATION OF A  
21 SOMATIC CELL NUCLEAR TRANSPLANTATION PROCEDURE WHICH WAS FOR THE  
22 SOLE PURPOSE OF CREATING NUCLEAR TRANSFER BLASTOCYSTS FOR THE  
23 EXTRACTION OF EMBRYONIC STEM CELLS. AS USED IN THIS SUBDIVISION,  
24 "BLASTOCYST" MEANS AN EMBRYO THAT HAS DEVELOPED TO A STAGE WHERE IT  
25 CONSISTS OF A SPHERE MADE UP OF AN OUTER LAYER OF CELLS, A FLUID-  
26 FILLED CAVITY, AND AN INNER CELL MASS.

# HOUSE BILL No. 4616

April 19, 2007, Introduced by Reps. Meisner, Byrnes, Alma Smith, Warren, Bauer, Hammon, Donigan, Farrah, Hopgood, Gillard, Coulouris, Tobocman, Clack, Robert Jones, Vagnozzi, Kathleen Law, Hammel, Gonzales, Polidori, Bennett, Miller, Young, Leland and Cushingberry and referred to the Committee on Judiciary.

A bill to amend 1978 PA 368, entitled  
"Public health code,"  
by amending section 2685 (MCL 333.2685).

## THE PEOPLE OF THE STATE OF MICHIGAN ENACT:

- 1       Sec. 2685. (1) ~~A-EXCEPT AS OTHERWISE PROVIDED UNDER SUBSECTION~~  
2       (3), A person shall not use a live human embryo, fetus, or neonate  
3       for nontherapeutic research if, in the best judgment of the person  
4       conducting the research, based upon the available knowledge or  
5       information at the approximate time of the research, the research  
6       substantially jeopardizes the life or health of the embryo, fetus,  
7       or neonate. Nontherapeutic research shall not in any case be  
8       performed on an embryo or fetus known by the person conducting the  
9       research to be the subject of a planned abortion being performed  
10      for any purpose other than to protect the life of the mother.  
11      (2) For purposes of subsection (1), the embryo or fetus shall